

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of operation within a data processing system, the method comprising:

receiving a ~~first~~ request to execute a first function to return data from a source, wherein the first function that is able to return[[s]] data with different organization and data types from more than one ~~two or more source[[s]], wherein said two or more sources includes a first data source and a second data source;~~

in response to receiving said first request, performing the steps of:

~~determining that said first data source is associated with said first request,~~

~~in response to determining that said first data source is associated with said first request,~~

executing a second function to obtain, from said ~~first data~~ source, ~~first~~ organization and data type information describing ~~first data to be~~ returned from said ~~first data~~ source by the first function,

~~wherein in response to receiving said first request, further performing:~~

registering the organization and data type information describing the data to be returned from said source, query duration types based upon data types,

~~wherein said query duration types are temporary data types that reflect data elements and collections of data elements to be fetched from the first data source, and~~

~~after~~

performing executing said first function against said ~~first data~~ source to obtain result data,

storing the returning first result data obtained from the source, ~~wherein said first result data in a format that~~ reflects said ~~first~~ organization and data type information, and

returning the result data.

~~wherein said first result data is in a same format as the first data as stored in the first data source;~~
~~receiving a second request to execute said first function,~~
~~wherein said second request is different is different from said first request, and~~
~~in response to receiving said second request, performing the steps of:~~
~~determining that said second data source is associated with said second request,~~
~~in response to determining that said second data source is associated with said~~
~~second request, executing said second function to obtain, from said~~
~~second data source, second organization and data type information~~
~~describing second data returned from said second source, and~~
~~after performing said first function against said second data source, returning~~
~~second result data to a computer readable storage medium, wherein said~~
~~second result data reflects said second organization and data type~~
~~information; and~~
~~wherein said second result data is in a same format as the second data as~~
~~stored in the second data source.~~

2-3. (canceled)

4. (currently amended) The method of claim 1 wherein determining that said ~~first data~~ source is associated with ~~first~~ said request comprises determining whether a certain keyword is specified as a data return type for the first function.

5. (currently amended) The method of claim 1 wherein determining that said ~~first data~~ source is associated with ~~first~~ said request comprises determining whether the first function returns data in an array of data elements.

6-8. (canceled)

9. (previously presented) The method of claim 1 wherein the organization and data type information indicates an arrangement of rows and columns of a database table and

wherein organizing the result data according to the organization and data type information comprises tabulating the result data according to the arrangement of rows and columns.

10-15. (canceled)

16. (currently amended) A system comprising:

a processing entity; and

a memory coupled to the processing entity and having program code stored therein

which, when executed by the processing entity, causes the processing entity to: receive a ~~first~~ request to execute a first function included in the program code to return data from a source, wherein the first function that is able to return[[s]] data with different organization and data types from more than one ~~two or more~~ source[[s]]; ~~wherein said two or more sources includes a first data source and a second data source;~~

in response to receiving said first request, performing the steps of:

~~determining that said first data source is associated with said first request,~~

~~in response to determining that said first data source is associated with said first request,~~

execute a second function to obtain, from said ~~first data~~ source, ~~first~~ organization and data type information describing ~~first data to be~~ returned from said ~~first data~~ source by the first function,

~~wherein in response to receiving said first request, further performing:~~

registering the organization and data type information describing the data to be returned from said source, ~~query duration types based upon data types,~~ ~~wherein said query duration types are temporary data types that reflect data elements and collections of data elements to be fetched from the first data source, and~~

and

———after

~~performing~~ executing said first function against said ~~first data~~ source to obtain
result data,

storing the ~~return~~ first result data obtained from the source, ~~wherein said first~~
~~result data~~ in a format that reflects said ~~first~~ organization and data type
information; and

returning the result data.

~~wherein said first result data is in a same format as the first data as stored~~
~~in the first data source;~~

~~receive a second request to execute said first function,~~

~~wherein said second request is different is different from said first request; and~~

~~in response to receiving said second request, performing the steps of:~~

~~determining that said first data source is associated with said second~~
~~request,~~

~~in response to determining that said second data source is associated with said~~
~~second request, execute said second function to obtain, from said second~~
~~data source, second organization and data type information describing~~
~~second data returned from said second data source, and~~

~~after performing said first function against said second data source, return~~
~~second result data to a computer readable storage medium, wherein said~~
~~second result data reflects said second organization and data type~~
~~information; and~~

~~—— wherein said second result data is in a same format as the second~~
~~data as stored in the second data source.~~

17-21. (canceled)

22. (currently amended) A computer-readable medium carrying one or more sequences of
instructions which, when executed by one or more processors, causes the one or more
processors to:

receive a ~~first~~ request to execute a first function to return data from a source, wherein
the first function ~~that is able to return~~[[s]] data with different organization and

data types from more than one ~~two or more~~ source~~[[s]]~~; ~~wherein said two or more sources includes a first data source and a second data source;~~

in response to receiving said first request, performing the steps of:

~~determining that said first data source is associated with said first request;~~

~~in response to determining that said first data source is associated with said first request;~~

execute a second function to obtain, from said ~~first data~~ source, ~~first organization~~ and data type information describing ~~first data to be~~ returned from said ~~first data~~ source by the first function,

~~wherein in response to receiving said first request, further performing:~~

registering the organization and data type information describing the data to be returned from said source, query duration types based upon data types, ~~wherein said query duration types are temporary data types that reflect data elements and collections of data elements to be fetched from the first data source, and~~

and

~~—————~~ after

~~performing~~ executing said first function against said ~~first data~~ source to obtain result data,

storing the ~~return~~ first result data obtained from the source, ~~wherein said first result data in a format that~~ reflects said ~~first~~ organization and data type information; and

returning the result data.

~~wherein said first result data is in a same format as the first data as stored in the first data source;~~

~~receive a second request to execute said first function;~~

~~wherein said second request is different is different from said first request; and~~

~~in response to receiving said second request, performing the steps of:~~

~~determining that said first data source is associated with said second request;~~

~~in response to determining that said second data source is associated with said second request, executing said second function to obtain, from said second data source, second organization and data type information describing second data returned from said second source, and after performing said first function against said second data source, returning second result data to a computer readable storage medium, wherein said second result data reflects said second organization and data type information; and~~
~~— wherein said second result data is in a same format as the second data as stored in the second data source.~~

23-24. (canceled)

25. (currently amended) The method of claim [[24]] 1 wherein ~~query duration types are~~ the registered organization and data type information is used to type-check the first function.

26. (currently amended) The computer readable medium of claim 22 wherein determining that said ~~first data~~ source is associated with ~~first~~ said request comprises determining whether a certain keyword is specified as a data return type for the first function.

27. (currently amended) The computer readable medium of claim 22 wherein determining that said ~~first data~~ source is associated with ~~first~~ said request comprises determining whether the first function returns data in an array of data elements.

28. (previously presented) The computer readable medium of claim 22 wherein the organization and data type information indicates an arrangement of rows and columns of a database table and wherein organizing the result data according to the organization and data type information comprises tabulating the result data according to the arrangement of rows and columns.

29. (Canceled)
30. (currently amended) The computer readable medium of claim [[29]] 22 wherein ~~query duration types are~~ the registered organization and data type information is used to type-check the first function.
31. (currently amended) A method of operation within a data processing system, the method comprising:
receiving a request to execute a first function that returns a data structure capable of
storing any data type;
wherein the data structure contains data from a data source;
executing a second function that generates and returns a list of data types to be returned
by the first function,
wherein the list of data types is received from the data source indicated by the
first function;
registering query duration types based upon the list of data types;
generating output buffers according to the query duration types;
completing query processing using the query duration types;~~wherein the completing~~
~~query processing further comprises~~
type-checking the first function using the query duration types;
executing the first function to obtain a collection of data in the data structure;
extracting the collection of data in the data structure;
sending the extracted collection of data in the data structure to the output buffers; and
returning the data in the output buffers according to the query duration types.
32. (Canceled)
33. (currently amended) A computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to:

receive a request to execute a first function included in the one or more sequences of instructions that returns a data structure capable of storing any data type;
wherein the data structure contains data from a data source;
execute a second function included in the one or more sequences of instructions that generates and returns a list of data types to be returned by the first function;
wherein the list of data types is received from the data source indicated by the first function;
register query duration types based upon the list of data types;
generate output buffers according to the query duration types;
execute the first function to obtain a collection of data formatted according to the first type of data structure;
complete query processing using the query duration types;~~wherein the completing query processing further comprises~~
type-checking the first function using the query duration types;
extract the collection of data in the data structure;
send the extracted collection of data in the data structure to the output buffers; and
return the data in the output buffers according to the query duration types.

34. (Canceled)